

## CLAIMS

1. Process for producing an RFID label by the use of a printing process,  
5 characterized in that at least part of the antenna and oscillating circuit required for the proper functioning of the label is applied to the substrate by sheet-fed offset printing.

2. Process according to claim 1, characterized in that a conductive paste or conductive ink is used to print the conducting tracks.

3. Process according to claims 1 and 2, characterized in that the conductive ink  
10 is an ink with metal particles.

4. Process according to claims 1 and 2, characterized in that the conductive paste contains carbon black or carbon fibers.

5. Process according to claims 1 and 2, characterized in that the ink is applied in a sheet-fed offset press with gripper transport.

15 6. Process according to claims 1 and 2, characterized in that the ink is applied within a rotary web offset press.

7. Process according to claim 5, characterized in that the components of the antenna / of the oscillating circuit are applied to the rear surface of the sheet and the sheet is then flipped over in a turning device.

20 8. Process according to claim 1, characterized in that, after the components of the antenna / of the oscillating circuit have been printed, a protective varnish or protective ink is applied.

9. Process according to claim 8, characterized in that the protective varnish or protective ink is transferred by way of a printing couple in a sheet-fed offset press.

10. Process according to claim 8, characterized in that the protective varnish is transferred by means of a printing couple in a flexo press with an ink chamber blade  
5 and screen roller.

11. Process according to claim 8, characterized in that the protective varnish is applied by means of a printing couple in a flexo press with twin-roll capacity.

12. Process for producing an RFID label by the use of a printing process, characterized in that at least part of the antenna and oscillating circuit required for the proper functioning of the label is applied directly or indirectly by means of a letterpress  
10 plate.

13. Process according to claim 12, characterized in that the letterpress plate is clamped onto a plate cylinder of a sheet-fed press or web-fed press, and the ink is transferred indirectly by way of a blanket cylinder to the substrate.

15 14. Process according to claim 12, characterized in that the letterpress plate in the sheet-fed or web-fed press is in direct contact with the substrate.

15. Process according to claim 13 or claim 14, characterized in that the letterpress plate is used in a press which also contains offset printing couples.

20 16. Process according to claim 1 or claim 12, characterized in that the substrate is a fibrous material.

17. Process according to claim 1 or claim 12, characterized in that the substrate is a film.

18. Process according to claim 1 or claim 12, characterized in that the substrate is a fabric of natural and/or synthetic fibers.

19. Process according to claim 1 or claim 12, characterized in that, in the case of absorbent substrates, the substrate is precoated, prevarnished, or preprinted with a varnish or a pre-inking medium to reduce the absorbent properties.

20. Process according to claim 19, characterized in that the precoating, prevarnishing, or preprinting is carried out by direct letterpress.

21. Process according to claim 19, characterized in that the precoating, prevarnishing, or preprinting is carried out by means of a letterpress plate, acting indirectly by way of a blanket cylinder.

22. Process according to claim 19, characterized in that the precoating, prevarnishing, or preprinting is carried out by means of a printing couple in an offset press.

23. Process according to claim 1 or claim 12, characterized in that, to produce a capacitive element (capacitor), two lines are printed next to each other over a certain portion of their length, the two lines being connected to each other at the ends of the shorter lines.

24. Process according to claim 1 or claim 12, characterized in that, to produce a capacitive element (capacitor), first the base line is printed, then, in a process according to claim 1 or claim 12, an insulator is printed over part of it, and in a third step the opposing line is printed by a process according to claim 1 or claim 12.

25. Process according to any of the preceding claims, characterized in that to mount an oscillating circuit or parts of an oscillating circuit or a chip, in order to be

connected to the antenna, a recess that receives at least the areal expanse of the oscillating circuit or part of the oscillating circuit or chip is formed in the substrate, that the oscillating circuit or part of the oscillating circuit or chip is placed in the recess, and that a conductive connection is produced between the oscillating circuit or chip and the  
5 antenna.

26. Process according to claim 25, characterized in that the recess is formed sufficiently deep that the upper surface of the oscillating circuit or part of the oscillating circuit or chip parallel to the upper surface of the substrate is at least flush with the upper surface of the substrate after it has been placed in the recess.

10 27. Process according to claim 25, characterized in that the recess is formed sufficiently deep that the upper surface of the oscillating circuit or part of the oscillating circuit or chip parallel to the upper surface of the substrate is at least flush with the upper surface of the antenna after it has been placed in the recess.

15 28. Process according to claim 25 or claim 26, characterized in that the recess is formed in the substrate by stamping, impressing, or grooving.

29. Process according to claims 25 to 27, characterized in that the recess is formed by stamping, impressing, or grooving in one or more operating units within the press used to carry out the coating operations.

20 30. Process according to claims 25 to 27, characterized in that the recess is formed by stamping, impressing, or grooving within a stamping press that produces one or more packaging cutouts from a sheet that has been printed at least with antennas and parts of oscillating circuits.

31. Process in accordance with any of claims 1 to 24, characterized in that an antenna or a part of an oscillating circuit is applied to the substrate, that the oscillating circuit or part of the oscillating circuit or a chip is applied to the substrate together with the antenna or the part of the oscillating circuit, that a conductive connection is produced between the oscillating circuit or chip and the antenna, and that the oscillating circuit or chip and the antenna are sunk at least to the level of the surface of the substrate by deformation of the substrate.

32. Process in accordance with any of claims 25 to 31, characterized in that a compressible substrate is used.